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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/501,947	02/10/2000	Stephen Peter Najda	YAMAP0696US	4581

7590 01/31/2002

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 01/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/501,947

Applicant(s)

STEPHEN PETER NAJDA

Examiner

Delma R. Flores Ruiz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-29 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,8-17 is/are rejected.
- 7) ☒ Claim(s) 3, 5-7, and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. **Primary Examiner**

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, and 8 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa (4,916,708).

Regarding claims 1, 2, 4, and 8 – 12, Hayakawa disclose a laser device comprising an n-doped cladding region (Fig 1, character 54 (Column 6, lines 64 – 65)), and a p-doped cladding region (Fig 1, character 55 (Column 6, lines 66 – 67 and Column 7, lines 1)): an optical guiding region (Fig 1, character 72 (Column 7, lines 15 – 16)), disposed between the n-doped cladding region and the p-doped cladding region; and a active region (Fig 1, character 70 (Column 7, lines 11 – 12)), disposed within the optical guiding region; wherein the laser device further comprises at least one optical confinement layer (Fig 1, character 76 (Column 6, lines 25)), disposed between the active region and at least one of the cladding regions, and wherein the laser device emits light in the visible region. A laser device, wherein the al least one optical

confinement layer (Fig 1, character 78 (Column 7, lines 25)) is deposited at the interface between the optical guiding region and one of the cladding regions. A laser device, wherein at least of the one cladding region has a graded bandgap ((Fig 1, (Column 3, lines 7 – 64 and Column 7, lines 10 – 33)). A laser device, wherein the at least one optical confinement layer is disposed on the p-side of the laser device and is p-doped, second optical confinement layer disposed between the active region and the other of the cladding region and second confinement layer is deposited between the optical guiding region and the other of the cladding regions (Fig 1, and (Column 6, lines 63 – 68, and Column 7, lines 1 – 32)). A laser device, fabricated in the (AlGaIn)P system, with the one cladding region being formed of AlGaInP having an aluminum mole fraction y and y decreases away from the at least one optical confinement layer (Fig 1, and (Column 6, lines 63 – 68, and Column 7, lines 1 – 32)). Hayakawa discloses the claimed invention except for a layer with a low refractive index. One of ordinary skill in the art at the time the invention was made would have found the advantage and desirability have a layer with a lower refractive index for improving optical and electrical effects of the system.

Claims 13 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa (4,916,708).

Hayakawa discloses the claimed invention except for a laser device wherein the at least one optical confinement layer is an AlGaInP layer having a greater aluminum mole fraction than the respective cladding region, one confinement layer is an AlInP

layer and the optical confinement layer consist of oxidized AlInP. It would have been obvious to one having ordinary skill in the art at the time the invention was made to laser device wherein the at least one optical confinement layer is an AlGaInP layer having a greater aluminum mole fraction than the respective cladding region, one confinement layer is an AlInP layer and the optical confinement layer consist of oxidized AlInP, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claims 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa (4,916,708).

Hayakawa discloses the claimed invention except for a laser device wherein y approximately 0.4 and 0.9 at the interface between the one cladding region and the optical confinement layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to laser device wherein y approximately 0.4 and 0.9 at the interface between the one cladding region and the optical confinement layer, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Allowable Subject Matter

Claims 3, 5 – 7, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 3, 5 – 7, and 18 has been allowed over the prior art because they fail to teach a laser device wherein the Γ conduction band of the part of the one cladding region immediately adjacent the at least one optical confinement layer is substantially degenerate with the x-conduction band of the at least one optical confinement layer, the composition of the one cladding region is selected such that the energy of the DX level in the one cladding region is greater than the Fermi level in the one cladding region, the DX level in the part of the at least one cladding region adjacent the at least one optical confinement layer is substantially degenerate with the X-conduction band in the optical confinement layer, the DX level in the one cladding region increases away from the at least one optical confinement layer and the thickness of the optical guiding region and the or each optical confinement layer are selected such that the laser device emits, in use, light having a substantially circular far-field profile.

The following is an examiner's statement of reasons for allowance: claim 19 has been allowed over the prior art because they fail to teach a semiconductor laser

comprising; **the composition of the n-type cladding region is selected such that the energy of the DX level in the n-type cladding region is greater than the Fermi level in the n-type cladding region** in combination with the remaining limitation on claim 20 – 21.

Claims 20 – 21 has been found allowable due to their dependency on claim 19.

The following is an examiner's statement of reasons for allowance: claim 22 has been allowed over the prior art because they fail to teach a semiconductor laser comprising; **the active region disposed within the optical guiding region; wherein the energy of the DX level in one of the cladding regions increases away from the optical guiding region** in combination with the remaining limitation on claim 22 – 29.

Claims 22 – 29 has been found allowable due to their dependency on claim 22

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reason for Allowance".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703) 308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.



Delma R. Flores Ruiz
Examiner
Art Unit 2828



Paul Ip
Supervisor Patent Examiner
Art Unit 2828

Drfr
January 24, 2002